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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,927	07/21/2003	Kaoru Shimbara	P/2699-27	6477

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EXAMINER

CULBERT, ROBERTS P

ART UNIT PAPER NUMBER

1763

DATE MAILED: 06/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/623,927

Applicant(s)

SHIMBARA ET AL.

Examiner

Roberts Culbert

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-16 is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 5/18/05 have been fully considered but they are not persuasive.

Applicant has argued that Yamasaki et al. fail to disclose the second substrate rotation process, which requires both the first, and second clamping member sets to clamp the substrate.

The argument is not persuasive to overcome the rejection of the previous office action. Yamasaki et al. teach a process that inherently includes a second rotation process in order to rotate the substrate as stated in Yamasaki et al. while switching between a first and second set of clamping members during the first half and second half of a rotation process.

Applicant has argued that it is not necessary for all of the pins (40 and 41) to be brought into abutment since the bottom of the wafer is supported by the pin pockets (40A and 41A)

The argument is not persuasive. If the wafer were not held by at least one set of pins at all times the wafer would be dropped, or at least would not be rotated by the pins, and the holding position would not be shifted. (Yamasaki et al. teaches "*thus the rotating wafer 10 can be shifted or switched in its holding position during the same process*")

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent 6,683,007 to Yamasaki et al.

Yamasaki et al. teaches a substrate treatment method for treating a substrate by supplying a treatment liquid to the substrate while rotating the substrate, the method comprising the steps of performing a first substrate rotation process for rotating the substrate while clamping the substrate by a first clamping member set (40) including at least two first clamping members, the clamping members being in abutment against a peripheral surface of the substrate during the first rotation process, and performing a third substrate rotation process by unclamping the substrate from the first clamping member set for rotating the substrate while clamping the substrate by the second clamping member set (41), the first clamping members being retracted from the peripheral surface of the substrate during the

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third substrate rotation process, the second clamping members being in abutment against the peripheral surface of the substrate during the third substrate rotation process. See Column 14, Lines 10-17 of Yamasaki et al.

Yamasaki does not explicitly teach performing a second substrate rotation process after the first substrate rotation step for rotating the first substrate while clamping the substrate by the first clamping member set and a second clamping member set provided performing a separately from the first clamping member set and including at least two second clamping members, the first and second clamping members being in abutment to the peripheral surface of the substrate during the second substrate rotation process.

However, it is inherent in the method of Yamasaki et al. that in order to successfully switch from the first set of clamping members to the second set of clamping members as described, it would be necessary to clamp the second set of clamping members before releasing the second set of clamping members in order to hold the substrate in place while shifting the holding position during the etching process as described by Yamasaki et al.

Alternatively, It would have been obvious to one of ordinary skill in the art at the time of invention to clamp the second set of clamping members before releasing the second set of clamping members in order to hold the substrate in place while shifting the holding position during the etching process in order to successfully switch from the first set of clamping members to the second set of clamping members as described by Yamasaki et al.

The moment of switching from a first clamping member set to a second clamping member set is performing a second substrate rotation process after the first substrate rotation step and before the third substrate rotation step for rotating the first substrate while clamping the substrate by the first clamping member set and a second clamping member set provided separately from the first clamping member set and including at least two clamping members.

Regarding Claims 2-4, Yamasaki et al. teaches at least three pins in the first and second clamping member sets. The clamp pins are brought into abutment against the peripheral portion of the substrate when the first clamping member set clamps the substrate as shown in Figure 9.

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Regarding Claim 5, Yamasaki teaches supplying a treatment liquid to a surface of the substrate during the first and third rotation steps.

Regarding Claim 6, Yamasaki teaches supplying an etching liquid for etching away unnecessary substance from a peripheral edge portion of the substrate.

Claim 7 is rejected under 35 U.S.C. 103(a) as obvious over U.S. Patent 6,683,007 to Yamasaki et al. in view of JP 10249613 A to Yuasa.

Regarding Claim 7, as applied above, Yamasaki et al teaches the method of the invention substantially as claimed but does not teach supplying the treatment liquid to the substrate and then performing spin drying in the first second and third rotation steps.

Yuasa teaches that rotating pin holders are used in the wafer processing arts for etching, cleaning and drying processes. (Refer to Abstract)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the spin chuck of Yamasaki to perform a spin-drying process after etching.

The motivation to perform spin-drying using the pin chuck of Yamasaki is that the portions of the wafer covered by the pins may be dried after a liquid etching or cleaning process.

Claim 8 is rejected under 35 U.S.C. 103(a) as obvious over U.S. Patent 6,683,007 to Yamasaki et al. in view of JP 2003088793 A to Niihara.

Regarding Claim 8, as applied above, Yamasaki et al teaches the method of the invention substantially as claimed but does not teach clamping members of at least one of the first clamping member set and the second clamping member set each have at least two abutment portions which are selectively brought into abutment against the substrate, and switchably bringing the at least two abutment portions into abutment against the substrate.

Niihara teaches a method of holding a substrate in which clamping members have two abutment portions which are selectively brought into abutment against the substrate, and switchably bringing the at least two abutment portions into abutment against the substrate.

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It would have been obvious to one of ordinary skill in the art at the time of invention to provide the clamping members have two abutment portions which are selectively brought into abutment against the substrate, and switchably bringing the at least two abutment portions into abutment against the substrate in order to provide a substrate holder in which dust is not produced by abrasion as suggested by Niihara.

Allowable Subject Matter

Claims 9-16 are allowed.

The following is an examiner's statement of reasons for allowance:

The prior art of record fails to teach or render obvious a substrate treatment method including five rotation processes which are performed using first clamping members having first and second abutment portions and second clamping members having third abutment portions which are selectively brought into abutment against the substrate, wherein the first rotation process uses the first abutment portions, the second rotation process uses first and third abutment portions, the third rotation process uses the third abutment portions, the fourth rotation process uses the second and third abutment portions, the fifth rotation process uses the second abutment portions.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action

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is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (571) 272-1433. The examiner can normally be reached on Monday-Friday (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. Culbert




PARVIZ HASSEZADEH
SUPERVISORY PATENT EXAMINER